

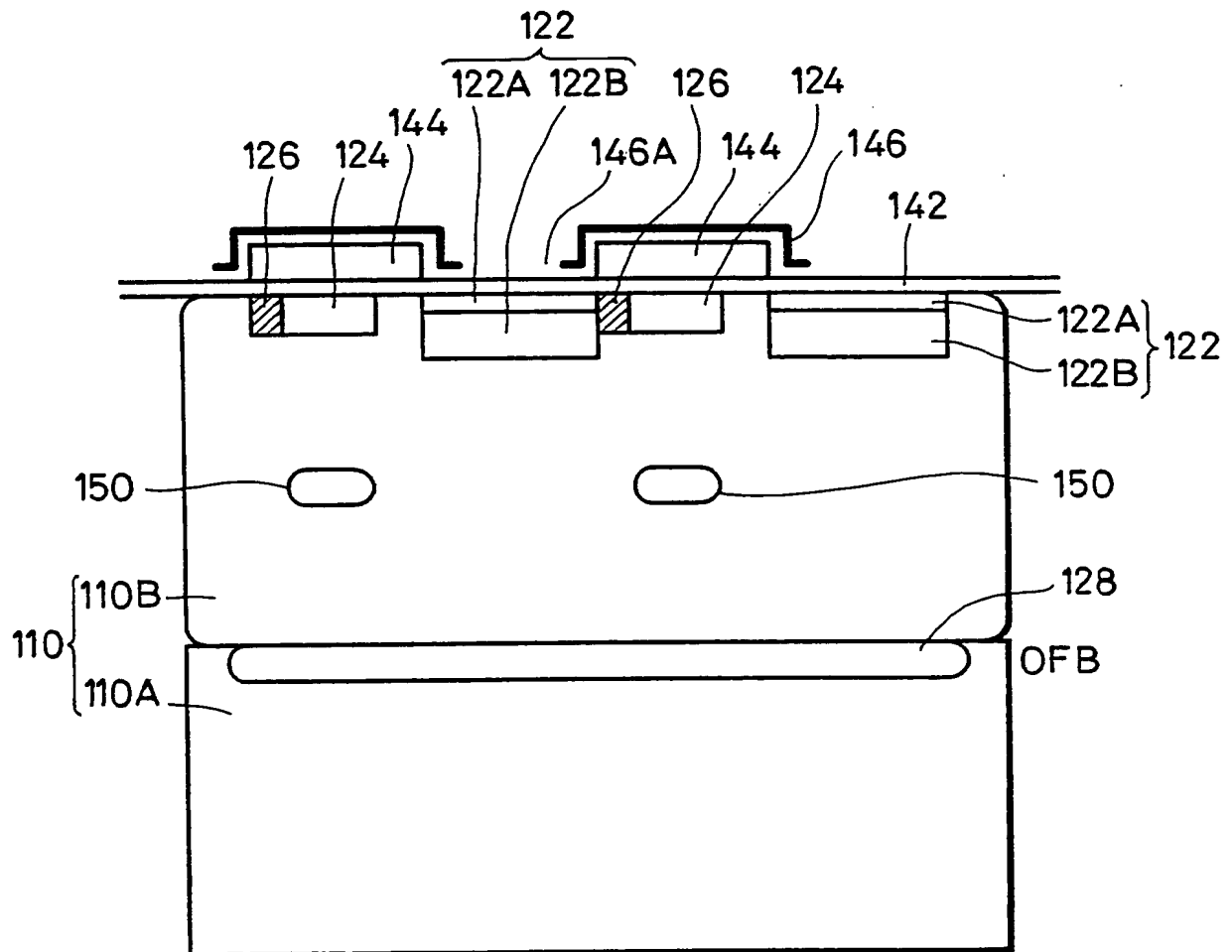
FIG. 1

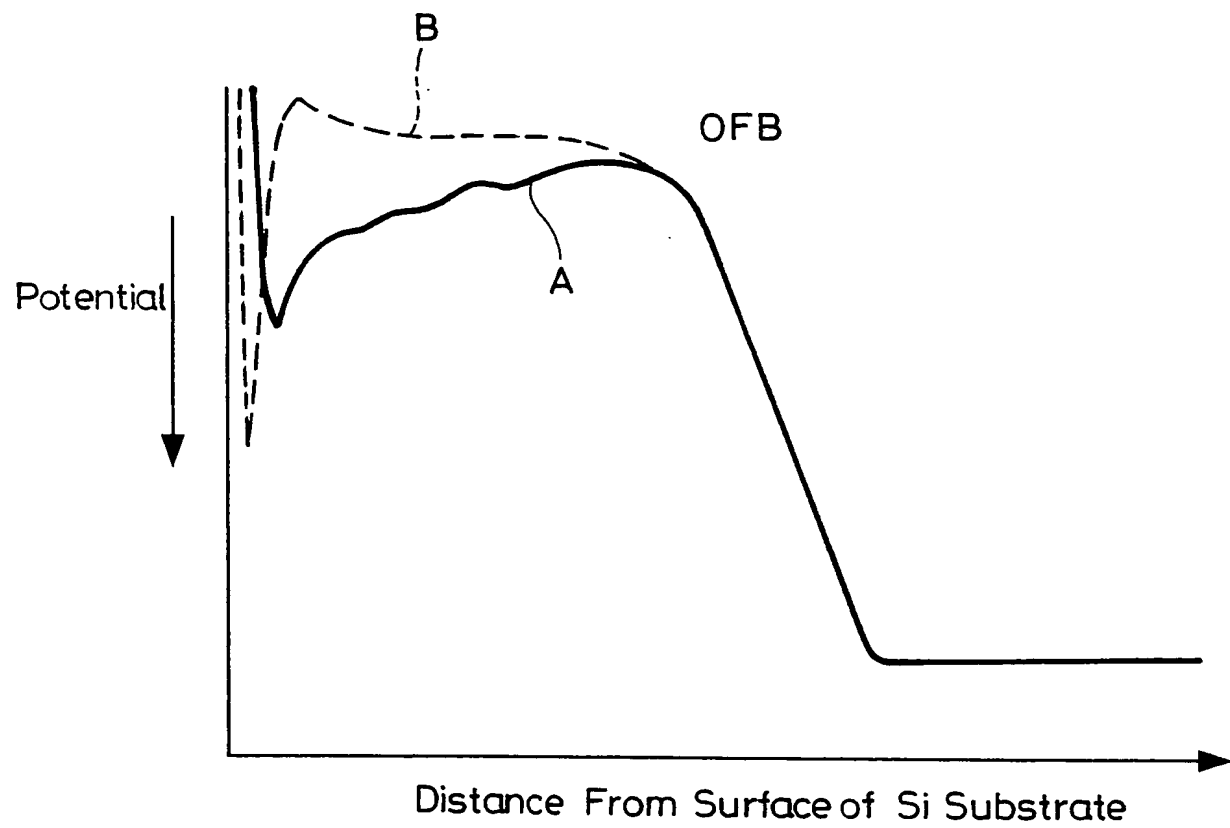
FIG. 2

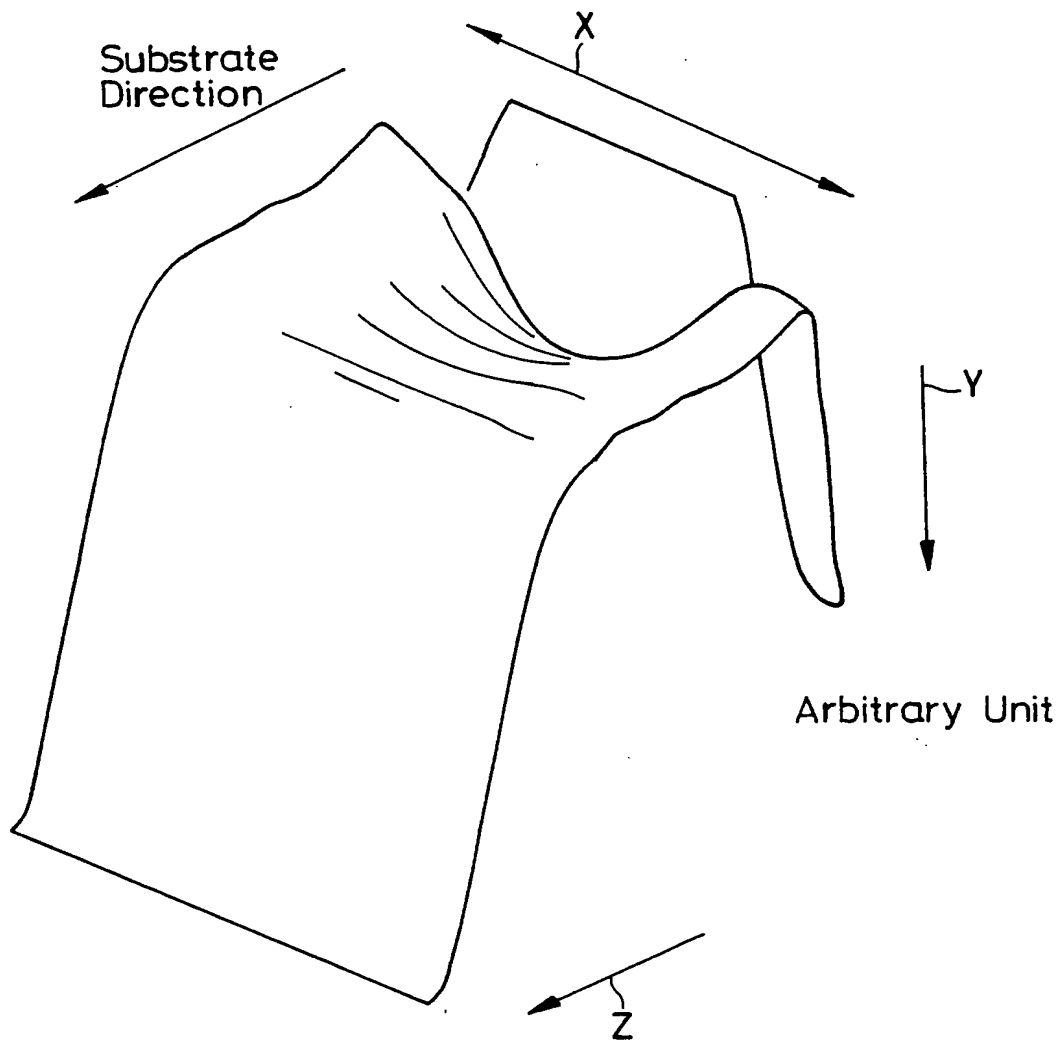
FIG. 3

FIG. 4

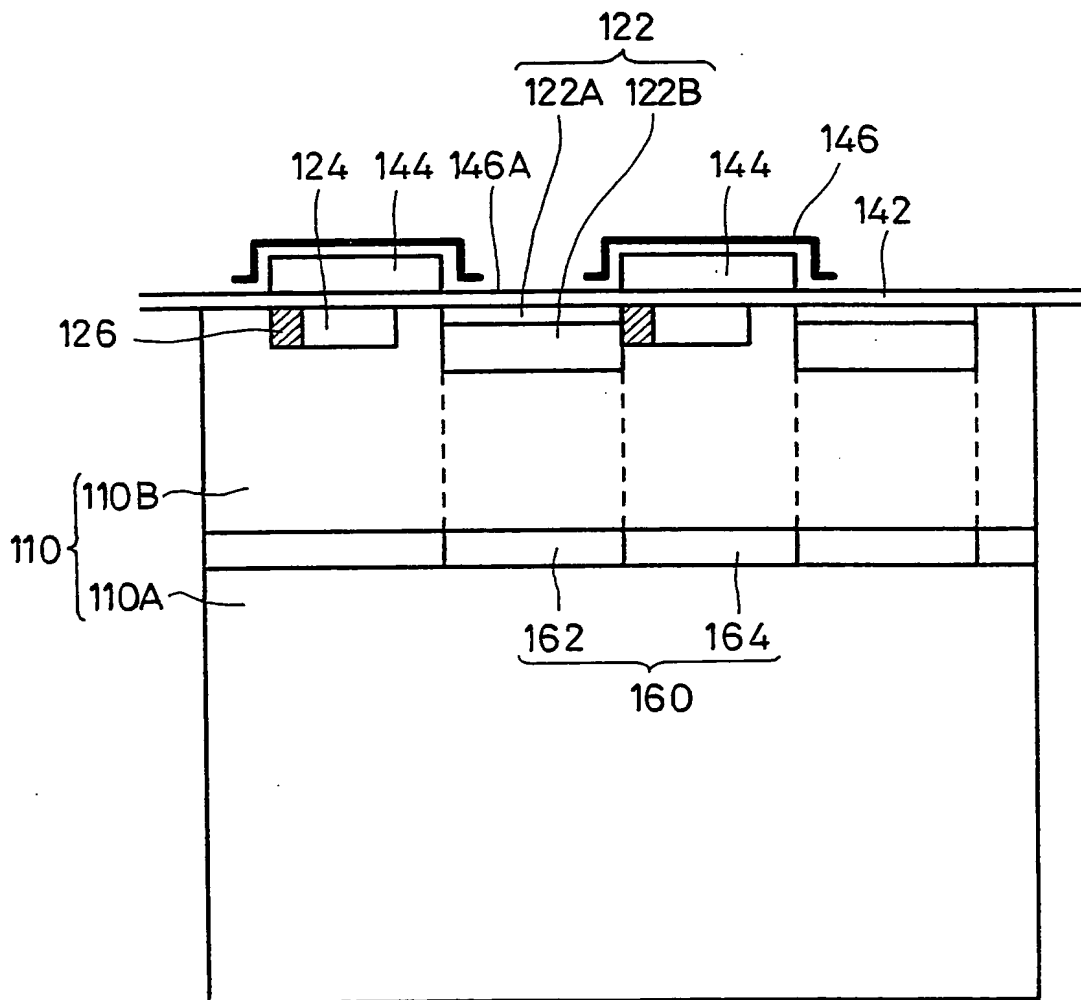


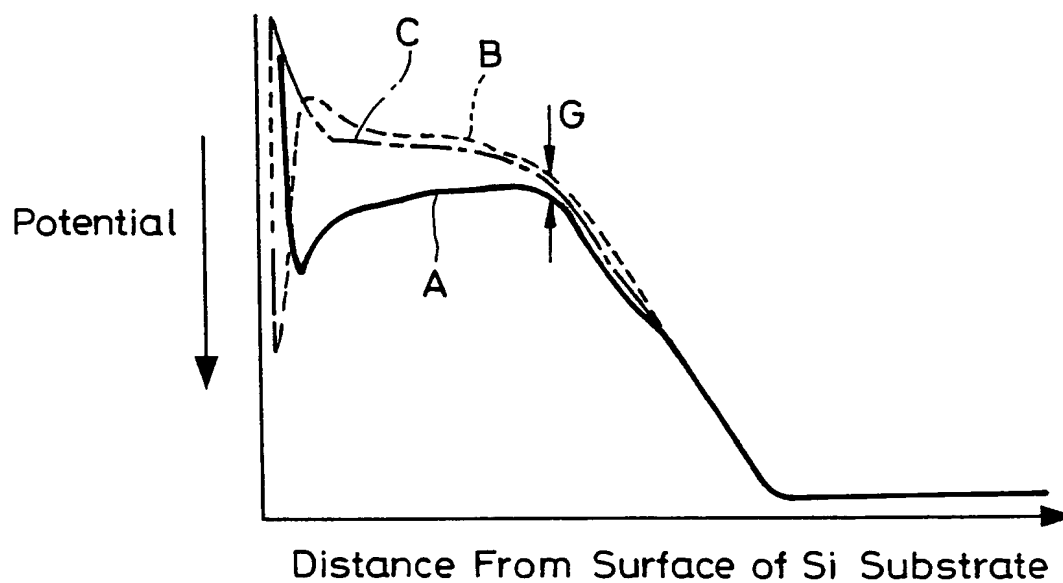
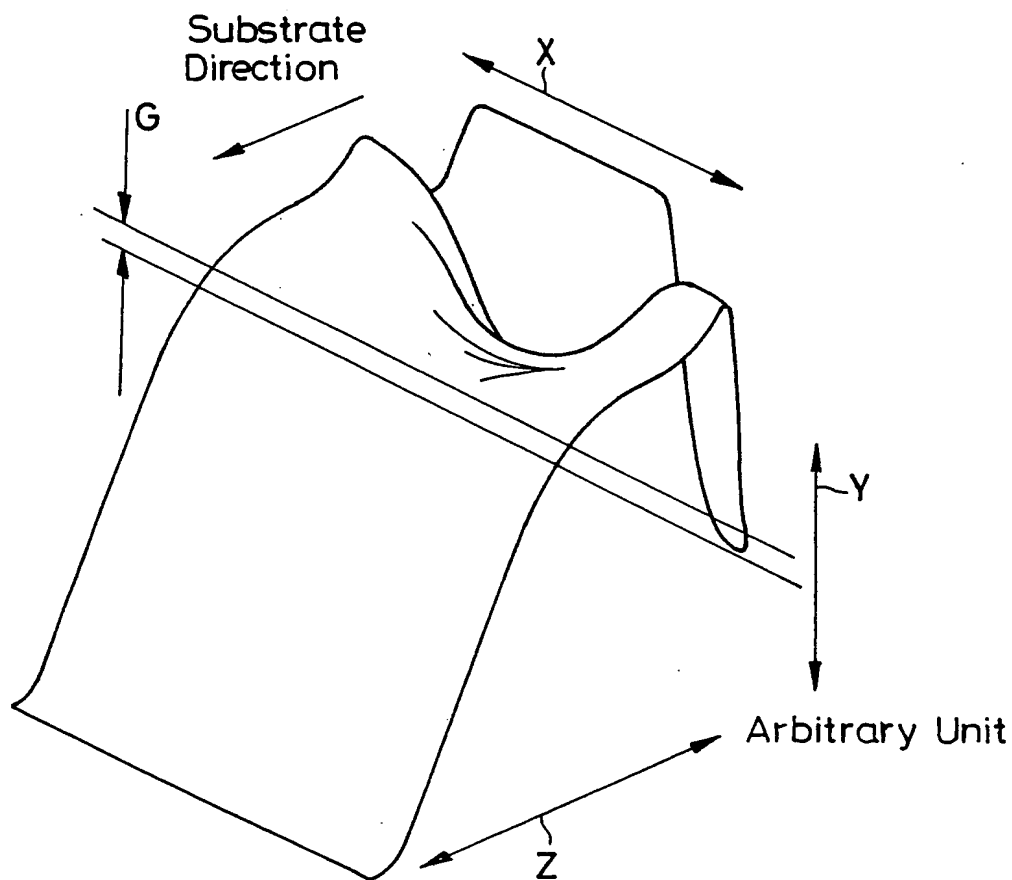
FIG. 5**FIG. 6**

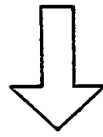
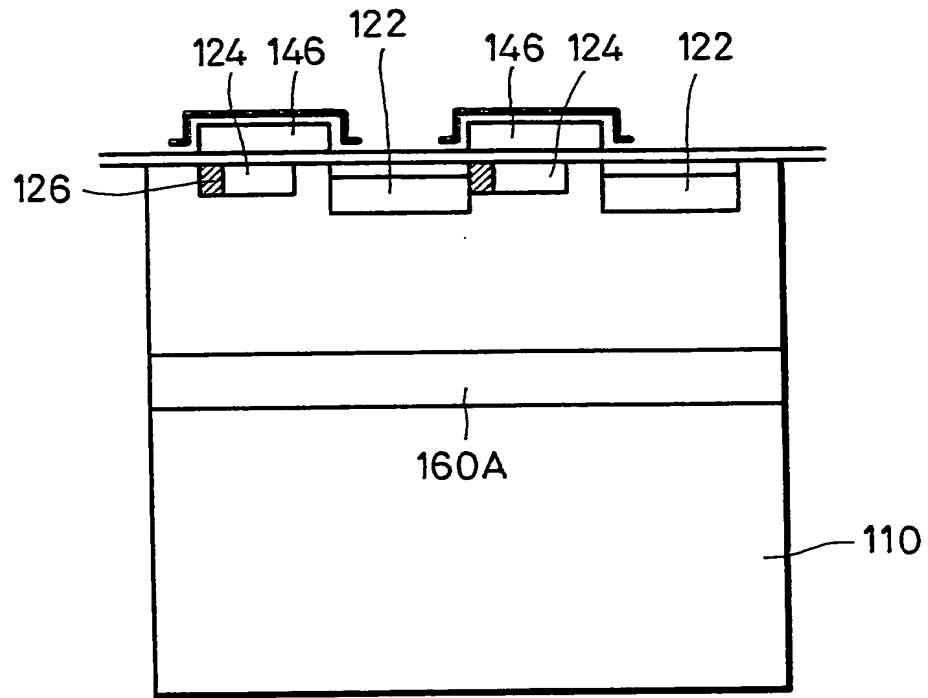
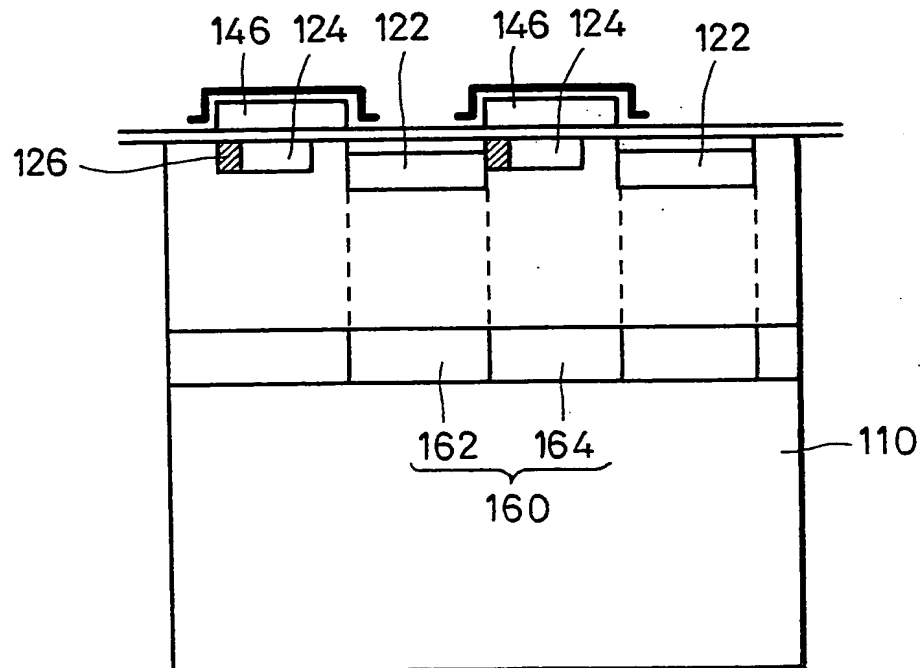
FIG. 7A**FIG. 7B**

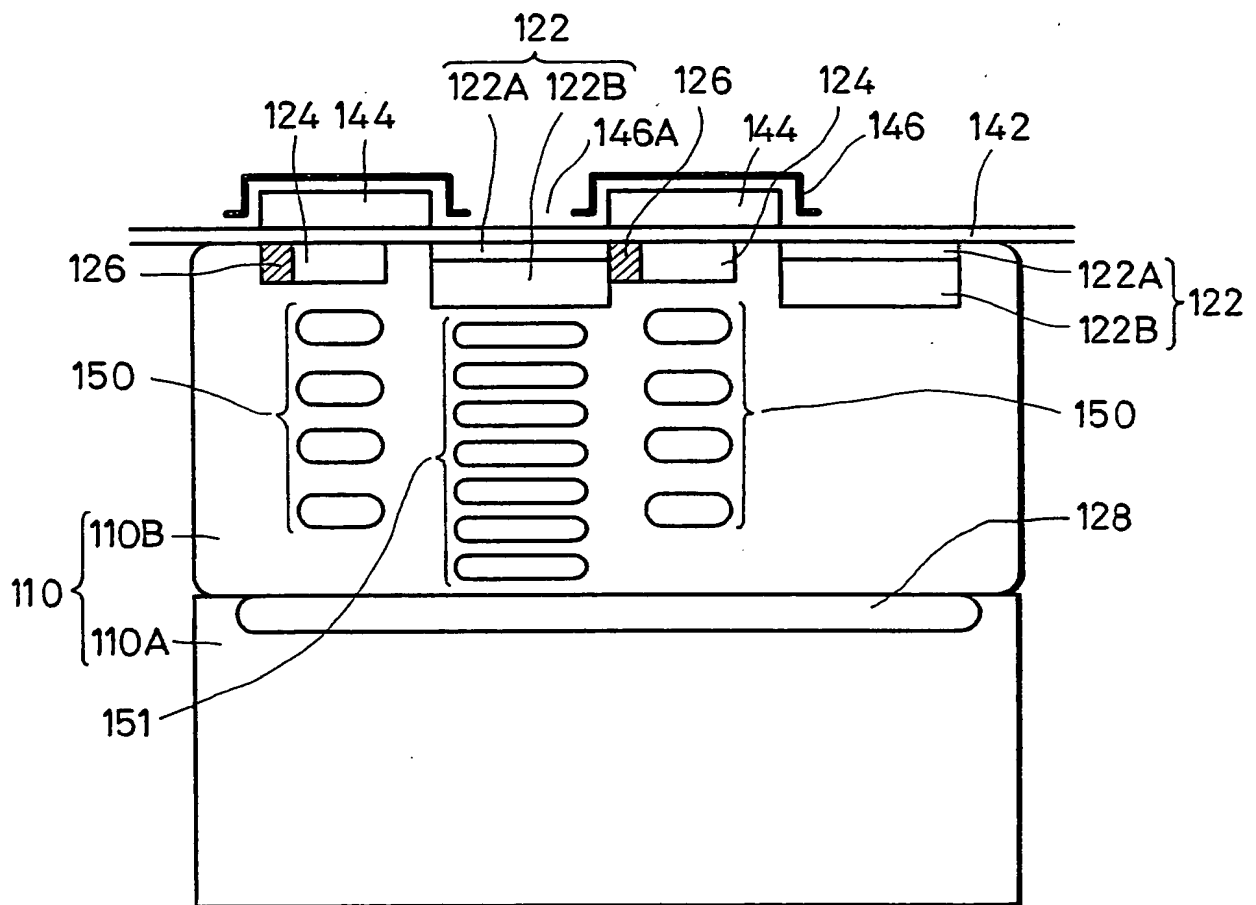
FIG. 8

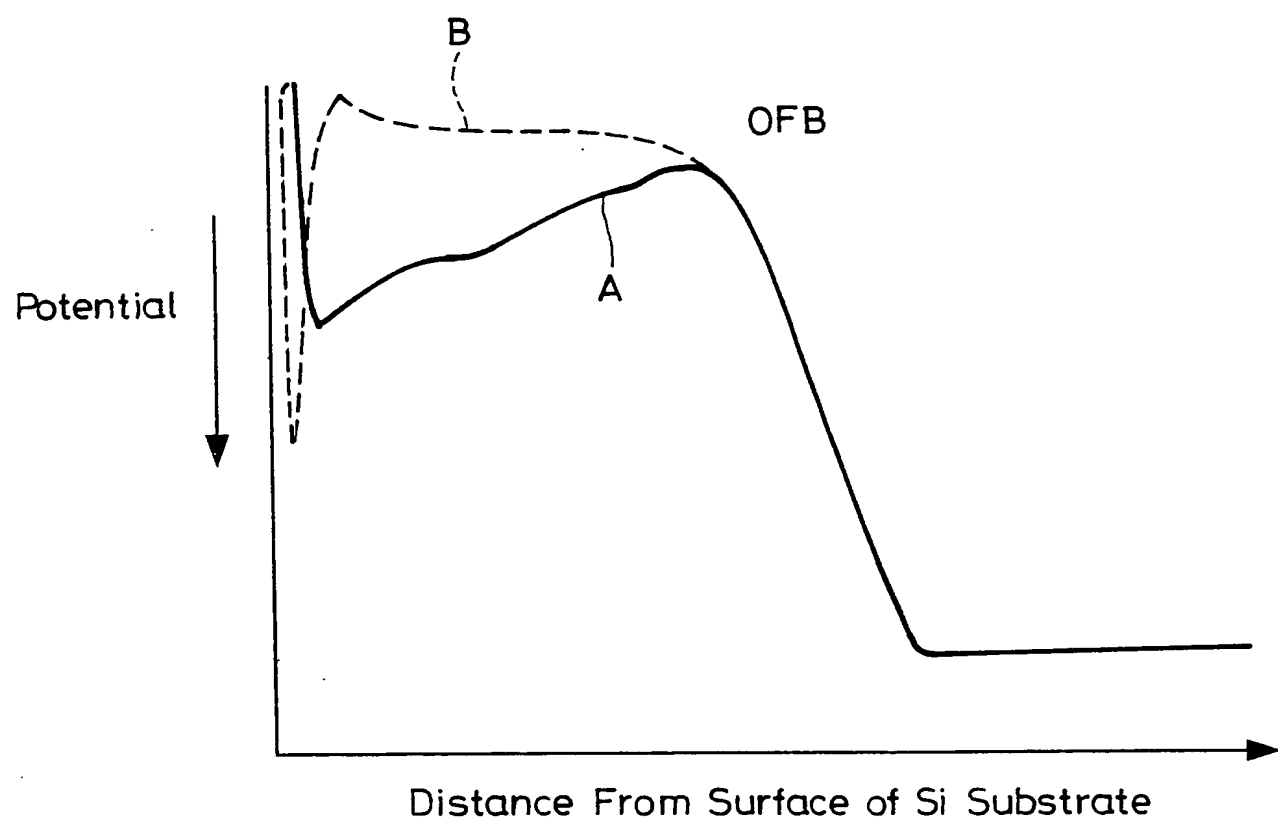
FIG. 9

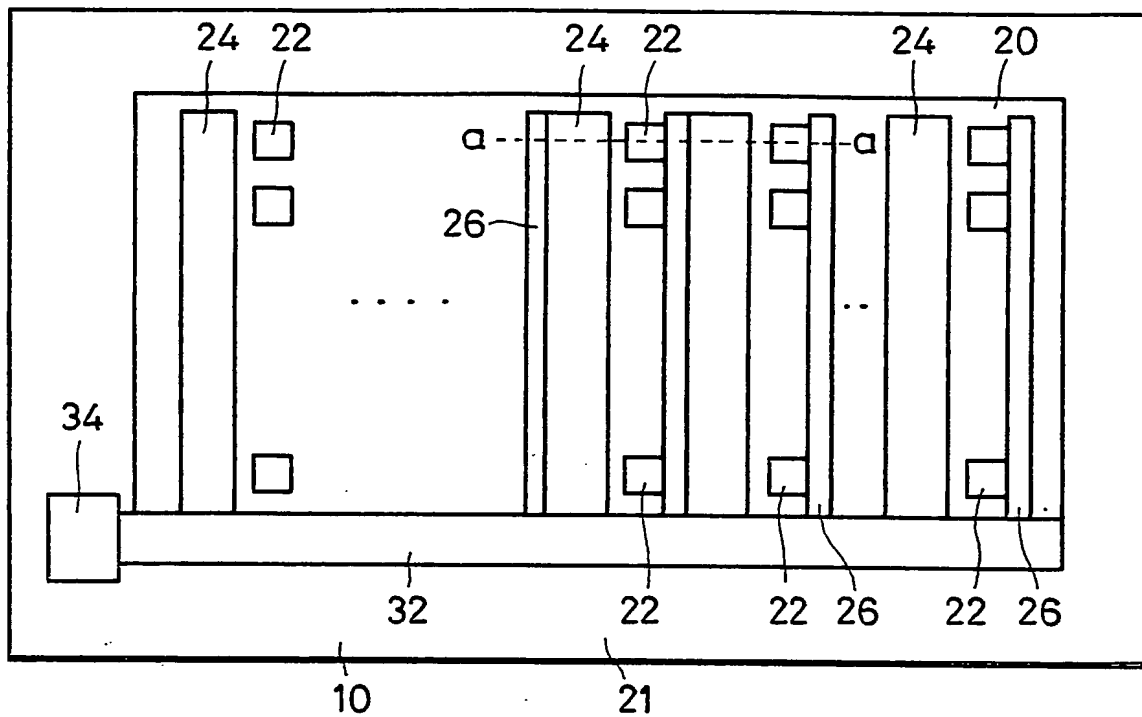
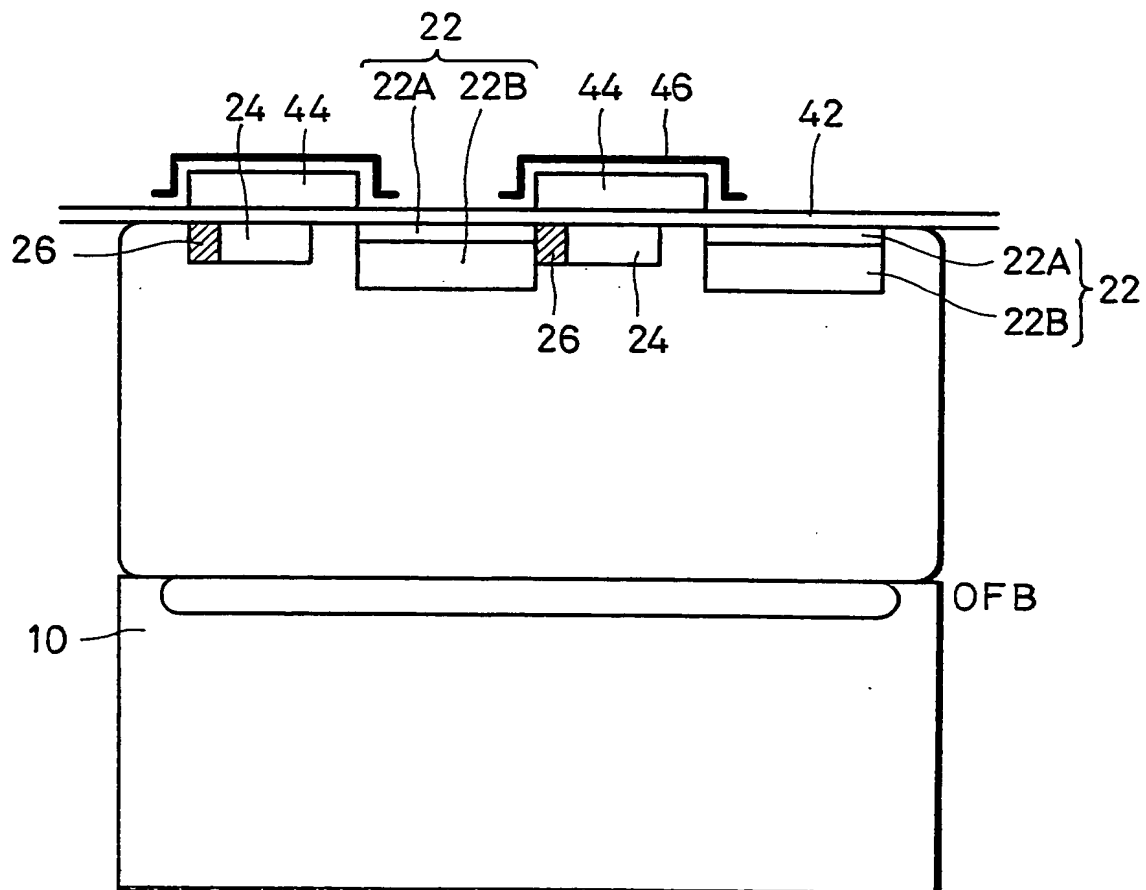
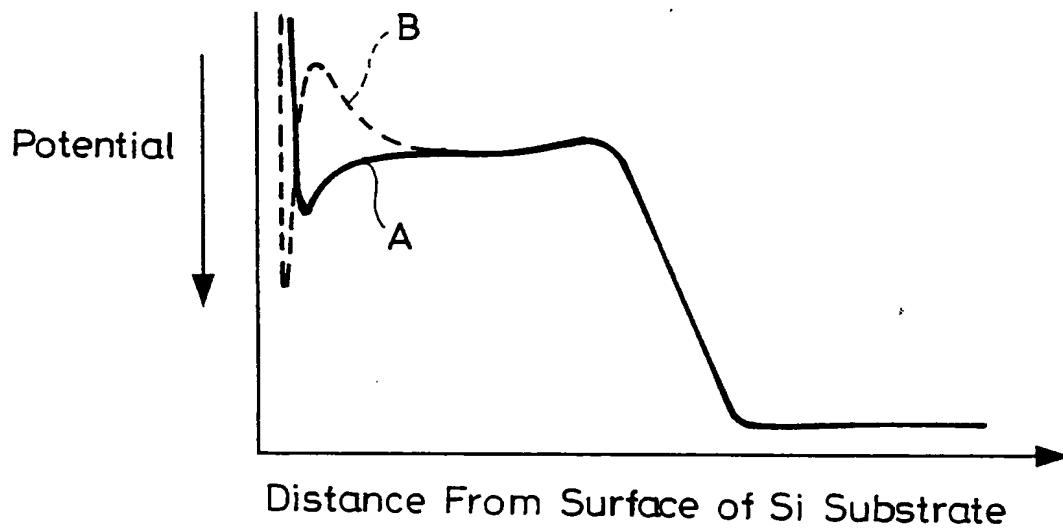
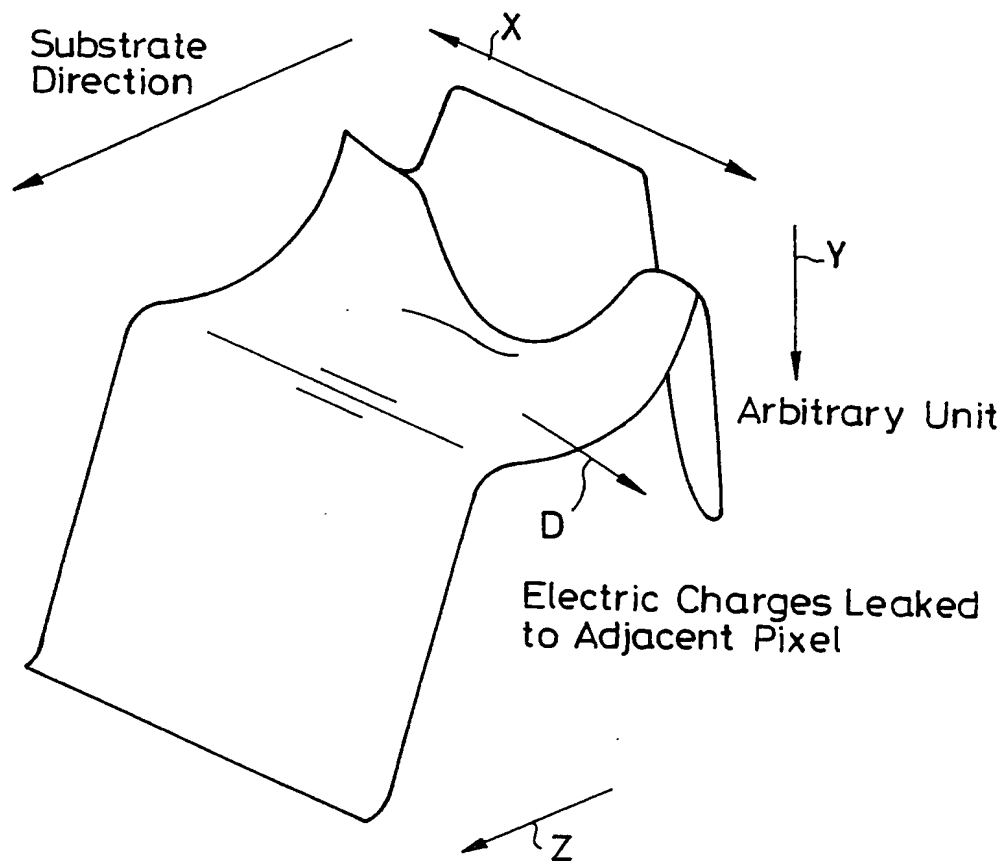
FIG. 10**FIG. 11**

FIG. 12**FIG. 13**

DESCRIPTION OF REFERENCE NUMERALS

110 ... semiconductor substrate
110A ... N type substrate
110B ... P type layer
122 ... photosensor
122A ... P⁺ layer
122B ... N layer
124 ... vertical transfer register
126 ... channel stop region
128 ... overflow barrier
142 ... insulating film
144 ... transfer electrode
146 ... light-shielding film
150 ... P type region